Claims:

1. Method of obtaining protective coatings on the surface of chemically active materials comprising a mixture of a chemically active metal and a fusible stable element characterized by comprising the steps of:

- providing at least one chemically active metal A
- providing at least one fusible stable element B
- mixing metal A and element B to form a mixture
- treating said mixture at its surface with a liquid agent L, which is capable of dissolving metal A but not capable of dissolving element B, at a temperature which is higher than the melting point of element B thereby creating a coating consisting essentially of element B at the surface of said mixture
- ceasing treatment when the desired thickness of the coating has been achieved
- removing the liquid agent and
- cleaning and drying the mixture.

2. Method according to claim 1, characterized in that metal A is selected from the group consisting of alkali, alkali-earth, rare-earth metals and/or actinoids.

3. Method according to claim 2, characterized in that metal A is selected from the group consisting of lithium, sodium, potassium, rubidium, cesium, magnesium, calcium, strontium, barium, radium, lanthanum, praseodymium, erbium, europium, ytterbium, uranium, plutonium and thallium.

4. Method according to any one of the preceding claims, characterized in that element B is selected from the group consisting of the elements in group III, IV, V and/or VI of the Periodic System and their binary and ternary combinations with each other.

5. Method according to claim 4, characterized in that element B is selected from the group consisting of gallium, indium and/or tin and their binary and ternary combinations with each other.

6. Method according to any one of the preceding claims, characterized in that the liquid agent L is selected from the group consisting of (a) substances the boiling point of which is higher and the melting point of which is lower than the melting point of element B, (b) mixtures of substances according to (a) and (c) solutions of substances

according to (a) or their mixtures (b) in solvents which are neutral to both metal A and element B.

7. Method according to claim 6, characterized in that the liquid agent L is selected from the group consisting of CH-acids, aliphatic alcohols, polyhydric alcohols, higher carboxylic acids, condensed arenes and/or macrocyclic polyethers and mixtures and/or solutions thereof.

8. Method according to any one of the preceding claims, characterized in that ceasing treatment is accomplished by decreasing the temperature below the melting point of element B.

9. Method according to any one of the preceding claims, characterized in that the thickness of the coating is 1 μm or more, preferably 10 μm or more.

10. Method according to any one of the preceding claims, characterized in that the thickness of the coating is being controlled by the adjustment of the duration and/or the temperature of the treatment with liquid agent L.

11. Method according to any one of the preceding claims, characterized by immersing the mixture of metal A and element B in liquid agent L.

12. Method according to any one of the preceding claims, characterized in that the mixture of metal A and element B is formed into a desired shape before treatment with liquid agent L.

13. Method according to claim 12, characterized in that the mixture of metal A and element B is formed in essentially spherical shape before treatment with liquid agent L.

14. Method according to claim 12, characterized in that the mixture of metal A and element B is formed in cylindrical form or in form of a plate before treatment with liquid agent L.

15. Method according to claim 13, characterized in that the spherically formed mixture is dropped into a bath of liquid agent L.

16. Chemically active material with a protective coating on its surface obtainable by the method of any one of claims 1 to 15.

17. Use of the chemically active material according to claim 16 as a vapor source in the manufacture of photoemissive devices and organic light emission diodes production, as a chemisorbent including evaporable and non-evaporable getters, in the manufacture of gas filters and vacuum sealed-off devices, as a source of active metals in chemical synthesis in the form of a catalyzer or in the form of a constituent of the produced product and/or for the manufacture of special alloys, sublimation pumps and/or particle accelerators.